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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,604	08/30/2000	Thomas J. Krutsick	5	9105

7590 04/26/2004

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EXAMINER

SEFER, AHMED N

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,604

Applicant(s)

KRUTSICK, THOMAS J.

Examiner

A. Sefer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-41 is/are rejected.
- 7) ☒ Claim(s) 42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on January 28, 2004 has been entered and new claims 40-42 have been added.

Response to Arguments

2. Applicant's arguments filed January 28, 2004 have been fully considered but they are not persuasive. Applicant argues that there is no rational basis for combining Kondo USPN 4,609,935 and Nelson et al. ("Nelson") USPN 3,683,491.
3. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, what Kondo lacks namely, a portion of a bottom surface of a field plate extending through a contact window, is disclosed by Nelson in fig. 9 wherein a field plate 46 with a portion of a bottom surface extending through a contact window in an insulating layer 32 and into contact with a contact region 38 of a resistor 34.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 40 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 40 and 41 recite the limitation "the method of claim ...". Since both claims 28 and 35 on which claims 40 and 41 depend respectively are drawn to device, there is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 28-30, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo USPN 4,609,935 in view of Nelson USPN 3,683,491.

Kondo discloses (see figs. 6-10 and col. 6, lines 46-49) an integrated circuit having a field-plated resistor, the field-plated resistor comprising a resistor body 35 formed in a semiconductor substrate, the resistor body having first and second contact regions; a first insulating layer 33 over the resistor body, the first insulating layer approximately coextensive with the resistor body and having a top surface and a bottom surface; a contact window in the first insulating layer (not shown) and extending from the top surface of the first insulating layer through the first insulating layer to the resistor body; a field

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plate 39 comprising polysilicon (as in claim 29) on the first insulating layer and approximately coextensive therewith and with the resistor body, the field plate having a top surface and a bottom surface; a second insulating layer 42, with a first portion of the second insulating covering the field plate, an electrical contact to the top surface of the field plate; an electrical contact to the second contact region of the resistor, and electrically insulated from the field plate by oxide layer 38 and a plurality metal conductors 44 formed on the first portion of the second insulating layer, but omits a portion of the bottom surface of the field plate extending through the contact window

Nelson discloses in fig. 9 a field plate 46 with a portion of the bottom surface extending through a contact window in an insulating layer 32 and into contact with a contact region 38 of a resistor 34.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Nelson's teachings with Kondo's device, since that would provide high values of resistance.

As to claim 30, Kondo discloses first and second insulating oxide layers.

As to claims 33 and 34, Kondo discloses a barrier layer 41.

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo in view of Nelson as applied to claims 28 and 29 above, and further in view of Davis et al. ("Davis") USPN 5,200,733.

The combined references disclose the device structure as recited in the claim, but do not disclose an insulative spacer formed around a field plate.

Davis discloses in fig. 11 an insulative spacer 40 around a field plate.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ an insulative spacer around a field plate, since that would provide the field plate an excellent insulation.

9. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo USPN 4,609,935 in view of Nelson USPN 3,683,491.

Kondo discloses (see figs. 6-10 and col. 6, lines 46-49) an integrated circuit having a field-plated resistor, the field-plated resistor comprising a resistor body 35 formed in a semiconductor substrate, the resistor body having first and second contact regions; a first insulating layer 33 over the resistor body, the first insulating layer approximately coextensive with the resistor body and having a top surface and a bottom surface; a contact window in the first insulating layer (not shown) and extending from the top surface of the first insulating layer through the first insulating layer through the first insulating layer to the resistor body; a field plate 39 on the first insulating layer and approximately coextensive therewith and with the resistor body, the field plate having a top surface and a bottom surface; a second insulating layer 42, with a first portion of the second insulating covering the field plate, a metal layer comprising an electrical contact to the top surface of the field plate, an electrical contact to the second contact region of the resistor, and electrically insulated from the field plate by oxide layer 38 and a plurality metal conductors 44 formed on the first portion of the second insulating layer, but omits a portion of the bottom surface of the field plate extending through the contact window.

Nelson discloses in fig. 9 a field plate 46 with a portion of the bottom surface extending through a contact window in an insulating layer 32 and into contact with a contact region 38 of a resistor 34.

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Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Nelson's teachings with Kondo's device, since that would provide high values of resistance.

10. Claims 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo USPN 4,609,935 in view of Nelson USPN 3,683,491.

Kondo discloses (see figs. 4-10 and col. 6, lines 46-49) a method of the manufacture of an integrated circuit having a field-plated resistor, the field-plated resistor comprising forming a resistor body 35 in a semiconductor substrate, the resistor body having first and second contact regions; a first insulating layer 33 over the resistor body, the first insulating layer approximately coextensive with the resistor body and having a top surface and a bottom surface; forming a contact window in the first insulating layer (not shown) and extending from the top surface of the first insulating layer through the first insulating layer through the first insulating layer to the resistor body; forming a field plate 39 comprising polysilicon (as in claim 37) on the first insulating layer and approximately coextensive therewith and with the resistor body, the field plate having a top surface and a bottom surface; depositing a second insulating layer 42, with a first portion of the second insulating covering the field plate; depositing a metal layer comprising an electrical contact to the top surface of the field plate, an electrical contact to the second contact region of the resistor, and electrically insulated from the field plate by oxide layer 38 and a plurality metal conductors 44 formed on the first portion of the second insulating layer, but omits a portion of the bottom surface of the field plate extending through the contact window.

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Nelson et al disclose in fig. 9 a field plate 46 with a portion of the bottom surface extending through a contact window in an insulating layer 32 and into contact with a contact region 38 of a resistor 34.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Nelson's teachings with Kondo's device, since that would provide high values of resistance.

As to claim 38, Kondo discloses first and second insulating oxide layers.

11. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo in view of Nelson as applied to claims 36 and 38 above, and further in view of Davis USPN 5,200,733.

The combined references disclose the device structure as recited in the claim, but do not disclose an insulative spacer formed around a field plate.

Davis et al disclose in fig. 11 an insulative spacer 40 around a field plate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ an insulative spacer around a field plate, since that would provide the field plate an excellent insulation.

Allowable Subject Matter

12. Claim 42 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claims 40 and 41 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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Conclusion

14. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS

April 18, 2004



Minhloan Tran
Primary Examiner
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